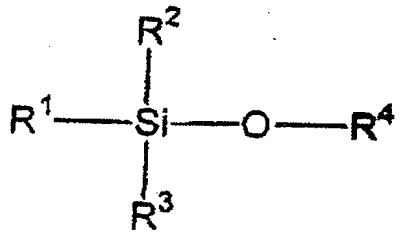
CLAIMS

1. A method for detecting and/or measuring the concentration of fluoride (F^-) or hydrogen fluoride (HF) in a sample, comprising the following steps:

- bringing into contact, in aqueous solution, said sample with a silylated organic compound in order to obtain a measurement solution, with said silylated organic compound being desilylated when it is in the presence of hydrofluoric acid or of fluoride, with the silylated organic compound and the desilylated organic compound being able to be detected and/or measured separately from each other; and

- detecting and/or measuring, in said measurement solution, the appearance of the desilylated organic compound, or the disappearance of the silylated organic compound, which takes place if fluoride or hydrogen fluoride is present in the sample.

2. The method as claimed in claim 1, in which the formula of the silylated organic compound is:



in which R^1, R^2 and R^3 are independently selected from C_1 to C_6 alkyls and R^4 is said organic compound.

3. The method as claimed in claim 2, in which R^1, R^2 and R^3 are independently selected from the group consisting of methyl, ethyl, propyl and butyl.

4. The method as claimed in one of claims 1, 2 or 3, in which the organic compound is a hydroxylated compound having a molecular weight of from 250 to 200 000 $g.mol^{-1}$.

5. The method as claimed in claim 1 or 2, in which the organic compound is a hydroxylated compound selected from the group consisting of estradiol, peptides, homovanillic acid, amphotericin, steroids, cytokines, arachidonic acid or derivatives thereof.

6. The method as claimed in claim 1, in which the detection and/or measurement, in said measurement solution, of the appearance of the desilylated organic compound, or of the disappearance of the silylated organic compound, is carried out by means of gas chromatography.

7. The method as claimed in any one of claims 1 to 6, in which the detection and/or the measurement, in said measurement solution, of the appearance of the desilylated organic compound, or of the disappearance of the silylated organic compound, is carried out by means of an immunological test using one or more antibodies which is/are directed either against the unsilylated or desilylated organic compound or against the silylated organic compound.

8. The method as claimed in claim 7, in which the antibody(ies) is/are (a) monoclonal antibody(ies).

9. The method as claimed in claim 7, in which the immunological test is a competitive-type or non-competitive-type immunoassay.

10. The method as claimed in claim 1 or 7, in which the organic compound is estradiol or one of its derivatives.

11. The method as claimed in claim 1 or 7, in which the organic compound is selected from the group consisting of estra-1,3,5-triene-3,17μ or 17μ-diol, or their derivatives.

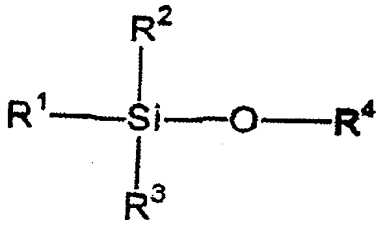
12. The method as claimed in any one of the preceding claims, in which the silylated organic compound is used at a concentration of from 1 to 2000 ng/ml in the contacting step.

13. The method as claimed in any one of the preceding claims, in which the pH of the contacting aqueous solution is buffered to pH 4.5 to 5.5.

14. The method as claimed in any one of the preceding claims, in which the contacting is effected at a temperature of from 54 to 64°C.

15. A kit for detecting and/or measuring the concentration of fluoride (F^-) or hydrogen fluoride (HF) in a sample, comprising the following reagents: a silylated organic compound which is desilylated when it is in the presence of fluorine or hydrofluoric acid; and a means for detecting, in aqueous solution, the appearance of the desilylated organic compound or the disappearance of the silylated organic compound.

16. The kit as claimed in claim 15, in which the formula of the silylated organic compound is:



in which R^1, R^2 and R^3 are independently selected from C_1 to C_6 alkyls, and R^4 is said organic compound.

17. The kit as claimed in claim 16, in which R^1, R^2 and R^3 are independently selected from the group consisting of methyl, ethyl, propyl and butyl.

18. The kit as claimed in one of claims 15, 16 or 17, in which the organic compound is a hydroxylated compound having a molecular weight of from 250 to 200 000 $g.mol^{-1}$.

19. The kit as claimed in claim 15 or 16, in which the organic compound is a hydroxylated compound selected from the group consisting of estradiol, peptides, homovanillic acid, amphotericin, steroids, cytokines or arachidonic acid, or derivatives thereof.

20. The kit as claimed in claim 15 or 16, in which the organic compound is estradiol or one of its derivatives.

21. The kit as claimed in claim 15, in which the organic compound is selected from the group consisting of estra-1,3,5-triene-3,17μ or 17μ-diol, or their derivatives.

22. The kit as claimed in any one of claims 15 to 21, which additionally comprises one or more antibody(ies) which is/are directed against the unsilylated or desilylated organic compound or against the silylated organic compound.

23. The kit as claimed in claim 22, which additionally comprises reagents and antibodies which are required for implementing a competitive-type immunoassay or reagents and antibodies which are required for implementing a non-competitive-type immunoassay.

24. The kit as claimed in claim 15, 22 or 23, which additionally comprises a polystyrene strip in which is/are formed one or more well(s) which serve(s) as (a) receptacle(s) for the step of contacting and/or detection and/or measurement.

25. The kit as claimed in claim 14, in which wells are coated with antibodies directed against mouse anti-estradiol antibodies.

26. The kit as claimed in claim 24, in which the silylated estradiol is bound to the bottom of the wells.